

IN THE CLAIMS

Please amend the claims as follows:

- 1 1. (Withdrawn) A method of p-type doping in ZnO comprising:
2 forming an acceptor-doped material having ZnO under reducing conditions,
3 thereby insuring a high donor density; and
4 annealing the specimens of said acceptor-doped material at intermediate
5 temperatures under oxidizing conditions so as to remove intrinsic donors and activate
6 impurity acceptors.
- 1 2. (Withdrawn) The method of claim 1, wherein said reducing conditions comprise a
2 hydrogen containing atmosphere.
- 1 3. (Withdrawn) The method of claim 1, wherein said reducing conditions comprise a
2 non- hydrogen containing atmosphere.
- 1 4. (Withdrawn) The method of claim 1, wherein said acceptor-doped material comprises
2 a substrate, a n-type ZnO layer deposited on said substrate, and a p-type layer deposited
3 on said n-type ZnO layer.
- 1 5. (Withdrawn) The method of claim 1, wherein said intermediate temperatures
2 comprise a temperature range between 200 °C and 700 °C.
- 1 6. (Withdrawn) A method of forming p-n junctions using p-type ZnO comprising:
2 forming an acceptor-doped material having ZnO under reducing conditions,
3 thereby insuring a high donor density; and

4 annealing the specimens of said acceptor-doped material at intermediate
5 temperatures under oxidizing conditions so as to remove intrinsic donors and activate
6 impurity acceptors.

1 7. (Withdrawn) The method of claim 6, wherein said reducing conditions comprise a
2 hydrogen containing atmosphere.

1 8. (Withdrawn) The method of claim 6, wherein said reducing conditions comprise a
2 non- hydrogen containing atmosphere.

1 9. (Withdrawn) The method of claim 6, wherein said acceptor-doped material comprises
2 a substrate, a n-type ZnO layer deposited on said substrate, and a p-type layer deposited
3 on said n-type ZnO layer.

1 10. (Withdrawn) The method of claim 6, wherein said intermediate temperatures
2 comprises a temperature range between 200 °C and 700 °C.

1 11. (Currently Amended) A wide band gap semiconductor device comprising an
2 acceptor-doped material having ZnO that is formed under reducing conditions, thereby
3 insuring a high donor density; ~~wherein the~~ and at least one specimens of said acceptor-
4 doped material are annealed at intermediate temperatures under oxidizing conditions so
5 as to remove intrinsic donors and activate impurity acceptors.

1 12. (Original) The wide band gap semiconductor device of claim 11, wherein said
2 reducing conditions comprise a hydrogen containing atmosphere.

1 13. (Original) The wide band gap semiconductor device of claim 11, wherein said
2 reducing conditions comprise a non- hydrogen containing atmosphere.

1 14. (Original) The wide band gap semiconductor device of claim 11, wherein said
2 acceptor-doped material comprises a substrate, a n-type ZnO layer deposited on said
3 substrate, and a p-type layer deposited on said n-type ZnO layer.

1 15. (Original) The wide band gap semiconductor device of claim 11, wherein said
2 intermediate temperatures comprise a temperature range between 200 °C and 700 °C.

1 16. (Currently Amended) A p-n junction comprising an acceptor-doped material having
2 ZnO that is formed under reducing conditions, thereby insuring a high donor density;
3 ~~wherein~~ and at least of the specimens of said acceptor-doped material ~~are~~ is annealed at
4 intermediate temperatures under oxidizing conditions so as to remove intrinsic donors
5 and activate impurity acceptors.

1 17. (Original) The p-n junction of claim 16, wherein said reducing conditions comprise
2 a hydrogen containing atmosphere.

1 18. (Original) The p-n junction of claim 16, wherein said reducing conditions comprise
2 a non- hydrogen containing atmosphere.

1 19. (Original) The p-n junction of claim 16, wherein said acceptor-doped material
2 comprises a substrate, a n-type ZnO layer deposited on said substrate, and a p-type layer
3 deposited on said n-type ZnO layer.

- 1 20. (Original) The p-n junction of claim 16, wherein said intermediate temperatures
- 2 comprises a temperature range between 200 °C and 700 °C.